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**Abstract**

# TECHNICAL AND ECONOMIC CONSIDERATIONS FOR PRODUCING 200 T/YEAR OF HEAVY WATER IN INDIA

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This paper discusses the technical and economic considerations for producing 200 t/year of heavy water in India utilising middling coal as the principal source of heat to the system by locating the plant near a coal mine or a coal washery. The process to be adopted for this plant consists of the $H_2S$-$H_2O$ dual temp. exchange for pre-enrichment, followed by water distillation for the final enrichment to reactor grade heavy water. Since the cost of energy forms a major part of the operating cost of this process, a location near a cheap fuel source has an important bearing on production costs.

The cost involved in expanding the present heavy water plant (14 t/year) at Nangal to produce 200 t/year by pre-enrichment of the feed to the electrolysers by an $H_2S$-$H_2O$ exchange process and providing additional capacity in the final enrichment step of hydrogen distillation has been worked out.

A comparison of the operating cost for these two plants show that the plant near a coal mine or a coal washery will produce heavy water at a lower cost.